

CLAIMS

We claim:

1. A scanning method for operating a scanning apparatus for optical density measurement and/or color or spectral measurement of at least one measurement object arranged on a printing medium, comprising
 - 4 detecting a position of a reference object on the printing medium; and
 - 5 scanning the measurement object with a sensor means based on a relative position of the measurement object with respect to the detected position of the reference object.
 2. The scanning method according to claim 1, wherein the sensor means is moved in a translational movement thereof to scan said measurement object, sensor means movement being activated responsive to a detection of the reference object.
 3. The scanning method according to claim 2, wherein the printing medium is carried on a roll, at an instant of detection of the reference object, a corresponding angle φ of rotation of said roll being measured and stored.
 4. The scanning method according to claim 3, wherein an angle-of-rotation increment is calculated based on a diameter of said roll, the measured angle φ of rotation and a predetermined distance running in a printing medium transport direction between the reference

4 object and the measurement object, the measurement object being scanned when said roll has
5 rotated said angle increment.

1 5. The scanning method according to claim 1, wherein scanning which is
2 activated with a time delay relative to an instant of detection of the reference object is triggered
3 in accordance with a currently determined printing medium speed and a predetermined distance
4 running in a printing medium transport direction between the reference object and the
5 measurement object.

1 7. The scanning apparatus according to claim 6, wherein said measurement
2 object is a longitudinal measurement strip disposed along a coordinate direction approximately
3 transversely of the printing medium transport direction.

1 8. The scanning apparatus according to claim 7, wherein the measurement
2 strip includes a linearly arranged chain of measurement fields thereon, said measurement fields
3 having specific color density values.

1 9. The scanning apparatus according to claim 8, wherein for detection and
2 scanning purpose, each measurement head is associated with at least one measurement section,
3 which measurement section includes measurement fields.

1 10. The scanning apparatus according to claim 9, wherein each measurement
2 section comprises two adjacent spaced apart measurement zones intervened by a narrow track.

1 11. The scanning apparatus according to claim 10, wherein the measurement
2 zones each have identically recurring sequences of color density values.

1 12. The scanning apparatus according to claim 10, wherein each
2 measurement zone has measurements fields of a same longitudinal dimension.

1 13. The scanning apparatus according to claim 11, wherein each
2 measurement zone has measurement fields of a same longitudinal dimension.

1 14. The scanning apparatus according to claim 13, wherein each
2 measurement zone includes a common number of measurement fields.

1 15. The scanning apparatus according to claim 10, wherein each
2 measurement zone has at least one minimum and one maximum color density value.

1 16. The scanning apparatus according to claim 8, wherein at least one of said
2 measurement fields comprises the reference object.

1 17. The scanning apparatus according to claim 7, wherein said measurement
2 heads are arranged one after another along said coordinate direction, the measurement heads
3 being moveable along said coordinate direction.

1 18. The scanning apparatus according to claim 17, wherein the apparatus is
2 disposed above a printing machine roll, the printing medium being carried on said roll.

1 19. The scanning apparatus according to claim 17, further comprising a slide
2 device, said measurement heads being carried on said slide device, said slide device being
3 moveable translationally along said coordinate direction.

1 20. The scanning apparatus according to claim 18, further comprising a slide
2 device, said measurement heads being carried on said slide device, said slide device being
3 moveable translationally along said coordinate direction.

1 21. The scanning apparatus according to claim 19, wherein in progressive
2 time with slide device translational movement, each measurement head scans a measurement
3 section on said measurement strip associated with said each measurement head.

1 22. The scanning apparatus according to claim 6, wherein the printing
2 medium is carried on a printing roll, said apparatus further comprising an angle measurement
3 transmitter carried on said printing roll for detecting an angle of rotation of said printing roll,
4 said transmitter being electrically operatively connected to the apparatus.

1 23. The scanning apparatus according to claim 22, further comprising a
2 control electronics unit, said control electronics unit being operative to detect a current angle of
3 rotation of said printing roll at detection of said reference object and trigger activation of

4 apparatus scanning when a predicted angle-of-rotation increment relative to that at detection is
5 reached.

1 24. The scanning apparatus according to claim 22, further comprising a
2 control electronics unit, said control electronics unit triggering activation of said scanning
3 apparatus with a predicted time-delay signal, the time delay being functionally dependent on a
4 predetermined distance between the reference object and the measurement object.

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